REMARKS

Applicant submits herewith new formal drawings that correspond to the originally-filed informal drawings. No new matter has been added to the formal drawings. Applicant requests that the Examiner substitute the formal drawings for the informal drawings on file.

Claims 1-20 are pending in the application In light of the following remarks, Applicant respectfully requests favorable reconsideration and allowance of the pending claims.

Rejection of Claims 1-20 Under §103

Claims 1-20 have been rejected under 35 U.S.C. § 103(a) based on U.S. Patent No. 5,574,325 ("von Musil"), U.S. Patent No. 5,633,477 ("Smith") and DuPont electronic publications, http://www.dupont.com/nomex/main ("DuPont"). Based on the following remarks, Applicant respectfully requests favorable reconsideration of claims 1-20.

Conductive Roebel filler 20 sections, like those illustrated in Applicant's Figure 2, significantly reduce the occurrence of partial discharge in the top and bottom of a strand assembly 14. However, Applicant has determined that such conductive Roebel filler may bleed through the insulator 18 of insulated strands 24 and cause undesirable strand-to-strand resistance, in the order of 1,000 to 30,000 ohms. Applicant has determined that the use of an isolation layer 22 between a Roebel filler 20 and insulated strands 24 makes it possible to obtain the desirable partial discharge reduction enabled by a Roebel filler and at the same time avoid undesirable strand-to-strand resistance.

The References Do Not Teach Or Suggest All Of The Claim Limitations

Applicant respectfully submits that the cited references do not teach or suggest all of the limitations of independent claims 1, 12, or 17. With regard to claim 1, Applicant submits that

neither von Musil, Smith nor Dupont teach or suggest an electrical isolation layer system comprising a "felt . . . interposed at least partially between the copper strands and the roebel filler" as recited by claim 1. With regard to claim 12, Applicant submits that neither von Musil, Smith nor Dupont teach or suggest a strand assembly comprising "an electrical isolation layer disposed at least partially between the insulated strands and the conductive filler material" as recited by claim 12. With regard to claim 17, Applicant submits that neither von Musil, Smith nor Dupont teach or suggest a method of forming a strand assembly comprising "arranging an electrical isolation layer at least partially over the insulated strands . . . whereby the insolation layer electrically isolates the strands from the filler" as recited by claim 17.

Von Musil, Smith and Dupont do not address the problem of strand-to-strand resistance caused by bleeding of a Roebel filler. As a result, these references simply do not teach or suggest an isolation layer configured and arranged as recited in independent claims 1, 12, and 17. Accordingly, Applicant respectfully requests favorable reconsideration of the rejection of independent claims 1, 12 and 17 and also of claims 2-11, 13-16 and 18-20, which depend from those claims, respectively.

CONCLUSION

In light of the above remarks, Applicant respectfully requests favorable reconsideration and allowance of claims 1-20. Should the Examiner have any questions concerning this paper or application, the Examiner is respectfully requested to contact Applicant's undersigned attorney to resolve such issue or question.

The commissioner is hereby authorized to charge any appropriate fees due in connection with this paper or credit any overpayments to Deposit Account No. 19-2179.

Respectfully submitted,

Dated: 5/12/03

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

Please amend the paragraph beginning on page 2 at line 7 as follows:

Each conductive strand is typically sheathed with an inexpensive insulation, such as [dacron] DACRON fiber glass (which has a relatively open weave with small porous micro-openings), to insulate the individual strands from each other. The insulated strands are then roebelled. A filler is pressed into the roebel offsets (i.e. open space between the roebelled insulated strands). The filler is advantageously conductive, such as a resin rich felt or mica, to inhibit it from undergoing partial electrical discharge activity and to meet the power factor tip-up requirements in order to maintain a high resistance between strands. Since the conductive filler can electrically pass or bleed through the openings in the [dacron] DACRON fiberfill glass strand insulation to the conductive strands (and/or vice-versa), low resistance electrical connections among the strands and/or filler can exist.

Please amend the paragraph beginning on page 3 at line 6 as follows:

One aspect of the present invention thus involves an electrical isolation layer system comprising, a first conductive material comprising a plurality of copper strands; a second conductive material comprising a roebel filler; and a [nomex] NOMEX fiber spun laced felt having a dielectric strength of at least 300 volts per millimeter interposed at least partially between the copper strands and the roebel filler.

Please amend the paragraph beginning on page 6 at line 14 as follows:

Figures 1 and 2 show axially extending slots 12 formed along the stator 10. The slots 12 are sized and configured to accept and secure at least one strand assembly 14 (or vice-versa). Each strand assembly 14 preferably comprises a plurality of transposed (e.g. roebelled) conductive (e.g. copper) strands 16 that are sheathed by an insulator 18 (e.g. [dacron-glass] DACRON fiber-glass), with a conductive filler 20 (e.g. mica) disposed about (completely or partially) the insulated 18 strands 16, and an isolation layer 22 disposed about (completely or partially) the conductive filler 20. As is understood by those skilled in the art, many other types of transpositions, strands 16, insulators 18, and fillers 20 can be used to form the strand assembly 14. Additional elements can also be used.

Please amend the paragraph beginning on page 7 at line 15 as follows:

The isolation layer 22 should have a dielectric strength of at least 300 volts per millimeter and preferably at least 500 volts per millimeter. Suitable dielectrics include polymers such as polyphenylene sulfide, polythiophene, polyacetylene and polypropylene, glass such as E-glass and S-glass, epoxy, resin, fabrics having NOMEX fiber, KEVLAR fiber or similar fibers, mica, and the like. NOMEX and KELVAR are registered trademarks of E.I. DuPont De Nemours and Company.

Please amend the paragraph beginning on page 8 at line 15 as follows:

The isolation layer 22 should be capable of withstanding the environment within which it operates, including withstanding stator temperatures of at least 130° C and preferably at least 155° C. Suitable materials include resins, plastics, NOMEX fiber, epoxies, and the like.

Please amend the paragraph beginning on page 8 at line 19 as follows:

Within the exemplary context of use within a generator stator 10, an isolation layer 22 preferably comprising a NOMEX fiber spun laced felt material (such as one commercially available by the Electrolock, Inc. company of Hiram, Ohio) and coated on one side with an epoxy adhesive, (such as one commercially available by Eletrolock, Inc.), can meet the above-described preferred characteristics. Other suitable materials include low temperature DACRON fiberfill and the like.

IN THE CLAIMS:

Please amend claims 1 and 14 as follows:

1. (Amended) An electrical isolation layer system, comprising:

a first conductive material comprising a plurality of copper strands;

a second conductive material comprising a roebel filler; and

a [nomex] NOMEX fiber spun laced felt having a dielectric strength of at least 300 volts per millimeter interposed at least partially between the copper strands and the roebel filler.

14. (Amended) The strand assembly of claim 12, wherein the isolation layer comprises a [nomex] NOMEX fiber spun laced felt.